بِسۡمِ ٱللَّهِ ٱلرَّحۡمَٰنِ ٱلرَّحِيمِ
قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا ۖ إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ

Al Quran.– 2:32

They said, "Exalted are You; we have no knowledge except what You have taught us. Indeed, it is You Who Are The Most Knowing, The Most Wise."

Sardar Taimur Hyat-Khan

Pak Prosperity:

Emergency Medicine Training; Emergency Preparedness & Humanitarian Assistance Training:

PART I

INTRODUCTION:

Pak Prosperity

For The Cause That Lacks Assistance!
For The Wrong That Needs Resistance!
And For The Good That We Can Do!

Vision Statement!

Skills Enhancement for Poverty Alleviation and Emergency Services and wish to address this Humanitarian Cause in Pakistan by providing our Services:

Goal and Objective:

Establishment of Emergency Medicine Teaching Hospital to provide Training; Inputs; Support and Guidance, particularly in an impoverished Rural Area.

The Training's Pertinent to this Goal are:

TRAINING PROGRAMS:

- ADVANCED CARDIAC LIFE SUPPORT: ACLS.
- ADVANCED TRAUMA LIFE SUPPORT: ATLS.
- TRAINING FOR PRE-HOSPITAL PROVIDERS/ PARAMEDICS.
- TRAINING ADVANCED LIFE SUPPORT PROVIDERS:
  INCLUDING FIXED-WING AND ROTOR CRAFT EMTS/ PARAMEDICS.
- CPR/ BASIC LIFE SUPPORT.
- ELEMENTARY FIRST AID AND EMERGENCY MEASURES.
- COMMUNITY PREPARADENESS.

TRAIN:

- LAYMAN:
- STUDENTS:
- MILITARY:
- LAW ENFORCEMENT
- FIRE STAFF:
- CIVIL DEFENSE:
- DOCTORS:
- PARA MEDICS:
- ADVANCED LIFE SUPPORT PROVIDERS:
- FIXED WING & ROTOR CRAFT EMTs:

EMERGENCY MEDICAL SERVICES:

ESTABLISH:

- EMERGENCY MEDICINE DEPARTMENTS:
- EMERGENCY MEDICINE INSTITUTES:
- HYPERBARIC/ WILDERNESS/ TOXIC/ NUCLEAR HAZARD/DISASTER UNITS:
- MODERN; FULLY EQUIPPED: RAPID REACTION: CALAMITY; HAZARD: ACCIDENT; TRAUMA SYSTEM:
- BURN CENTERS:
- PUBLICATIONS FOR EMERGENCY MEDICINE & TRAUMA:

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PART II

BACKGROUND:

DEFINITIONS:

EMERGENCY: Sudden event, difficult situation, exigency, crisis, needing prompt action,

PREPAREDNESS: Making Ready beforehand.

HUMANITARIAN: Philanthropically devoted to human interests, Benevolence.

ASSISTANCE: Lending Aid, Supporting by presence.

TRAINING: Process of Educating, Instructing, Art of preparing.

STATUS IN PAKISTAN:

Specialists are available in most disciplines, including transplant surgery, in Pakistan. HOWEVER, Emergency Medicine, an essential and vital basic specialty, has NO Formal Residency Training Programs in Govt. Teaching Hospitals and NO Specialty Board exists. The College of Physicians and Surgeons of Pakistan has NO Formal Exam for the Specialty.

An essential and vital aspect of Emergency Care is the Pre-hospital phase of stabilization and transportation. Emergency Medical Technicians; Para Medics and well-equipped ambulances are sorely lacking in our Country.

Fifty Percent of deaths from Cardiac events occur within the first two hours and multiple trauma patients have a *Golden Hour*, which is the first hour post injury, where equipped and trained Para Medics make a difference between life and death/disability.

We are one and all stricken by the fear of insufficient care and facilities in the case of life threatening emergencies that may be inflicted upon us at any time. Rapidly increasing population with inadequate traffic and hazard control along with the possibility of Natural Calamities and War conditions make the incidence of Emergencies extremely likely.

The number of disabling injuries and trauma related deaths occurring each year is staggering. The cost of Human suffering and life is incalculable. Trauma is merciless in its lethal and mangling pathways among the young and potentially productive members of our society.

As with most critical illnesses, the quality of initial management of the severely injured patient, influences the Patient's final outcome! An organized and consistent approach to the trauma patients affords an optimal outcome.

How Did We Get Here?

Emergency Medicine and Accident Surgery encompass a unique body of knowledge. It is the medical specialty with the principal mission of evaluating; managing; treating and preventing unexpected illness and injury.

Anyone may unexpectedly require medical care at any time.

Emergency medical care must therefore be available 24 hours a day as an essential component of all health care delivery systems.

Training and Certification as specialists exists in the U.S. through the American Board of Emergency Medicine. In Canada, Australia and the U.K. through their certifying agencies.

Since the early sixties, coronary mobile units in Ireland, with trained and well equipped health care providers, respond to emergencies by a methodical system (EMS) and according to the severity of the illness.

On Line Command, or treatment by protocols, is delivered in the field and transportation is selectively directed to pre-designated institutions such as; Trauma Centers & Burn Centers, saving life and limb. The Pre-Hospital phase of Emergency Care is an extension of the Emergency Department and its Medical Commanders.

Available Options:

Establishment of ‘Service Centers’ in Rural Pakistan along lines of The late Akhter Hameed Khan’s “Training & Development Centers (TDCs)” for Imparting Training & Skills development in Agriculture, Horticulture, Micro Industry and Emergency Medicine through Demonstrated Excellence. Also serve as Resource Centers.

A State of the Art Paper to be prepared in six months covering the following:

Evaluation of Curriculum at the Under Graduate and Post Graduate level in the specialty of Emergency Medicine and Accident Surgery. Develop Training and Specialist Certification in Emergency Medicine.

- Feasibility Report for the establishment of Educational Institutions for Training and Certifying Para Medics; Emergency Medical Technicians (Land & Air Transport Personnel).

- Development of Curriculum for Emergency Nursing; Specialist Training and Certification for Critical Care (ICU, CCU; Emergency and Trauma Nursing Staff).

- Policy for Public education regarding appropriate utilization of Emergency Services in Pakistan.

- Establish Federal and Provincial Institutes to implement Training/Certification in Emergency Medicine, Basic and Advanced Cardiac/ Trauma Life Support. This Institute to serve as a National Resource.

PRACTICALMEASURES:

- STRUCTURE & DESIGN OF EMERGENCY MEDICINE DEPARTMENTS:
- WRITING POLICES, PROCEDURES, QUALITY ASSURANCE AND RISK MANAGEMENT PROTOCOLS.
- DISASTER PLANNING, HYPERBARIC MEDICINE, WILDERNESS MEDICINE & RESCUE: TOXICOLOGY (BIOLOGICAL WARFARE): RADIATION-HAZARDS:

- RESEARCH/ PUBLICATION OF EMERGENCY & TRAUMA JOURNALS:

- ESTABLISH FEDERAL & PROVINCIAL EMERGENCY MEDICINE INSTITUTES:

- ESTABLISH MODERN, RAPID REACTION, EMERGENCY SYSTEM:

- ESTABLISH ‘SERVICE CENTERS’ IN RURAL AREAS.

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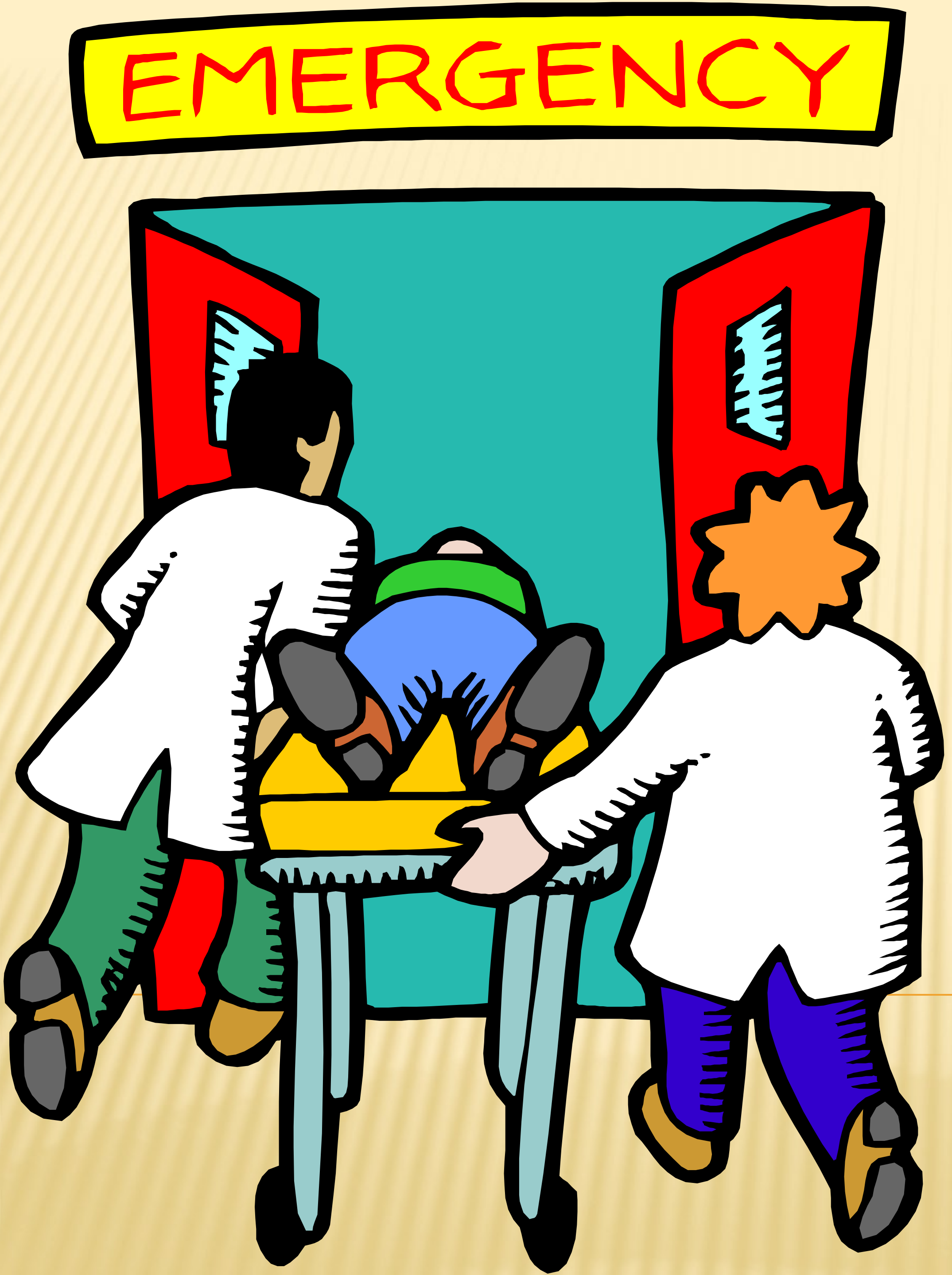


PART III

TECHNICAL TRAINING: & SERVICES:

ADVANCED CARDIAC LIFE SUPPORT (ACLS):

This text is based upon the American National Conference on Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC) held by the American Heart Association in September 1979.

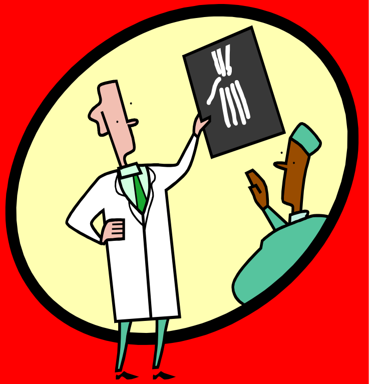
The text is focused clearly on the victim of sudden death or a cardiac emergency, it emphasizes the importance of prevention of coronary artery disease and coronary heart disease by aggressive action at the community level so that, with CPR and ECC, active efforts to prevent premature mortality and morbidity can be mobilized.

In Pakistan the incidence of these diseases has assumed alarming proportions. This is especially true for the young and early middle age bracket. Thus the huge amount of loss that the Nation incurs in the shape of lost input and for the Family in coping with tragedy, is avoidable. This goal must be pursued aggressively.

CONTENTS:

Advanced Cardiac Life Support (ACLS) in perspective.

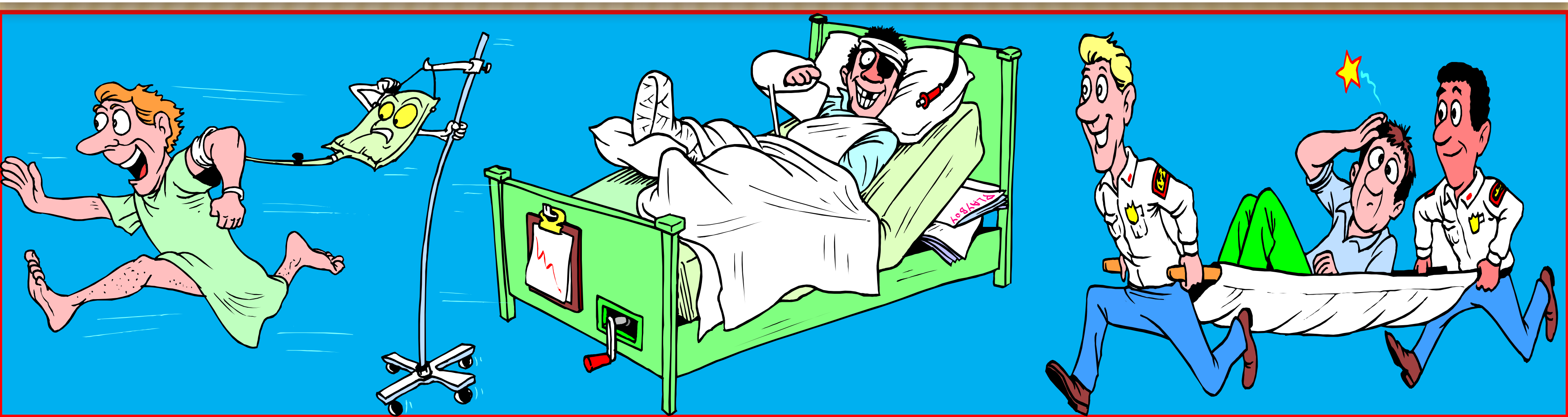
- Sudden Cardiac Death.
- Myocardial Infraction.
- Adjuncts for Airway Control and Ventilation.
- Monitoring and Dysrhythmia Recognition in Advanced Cardiac Life Support.
- Defibrillation and Synchronized Cardioversion.
- Cardiovascular Pharmacology: Part 1
- Cardiovascular Pharmacology: Part 2
- Acid-Base Balance.



- Catheter and Infusion-Related Sepsis: The Nature of the problem and its Prevention.
- Intravenous Techniques.
- Invasive Monitoring Techniques.
- Invasive Therapeutic Techniques.
- Post-Resuscitation Management.
- Resuscitation of the Newborn.
- Resuscitation of Children.
- Medico-Legal Aspects of Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC).

ADVANCED TRAUMA LIFE SUPPORT (ATLS):

The purpose of this course is to orient Physicians to the initial assessment and management of the Trauma victim. In general, the content and skills presented in the course are designed to assist physicians in providing the first hour of emergency care for the Trauma patient. This course has been proved effective for the Physician who does not have immediate access to advanced trauma life support care and needs to take comprehensive action for patient care until the services of a critical care trauma facility can be made available for assistance.



CONTENTS:

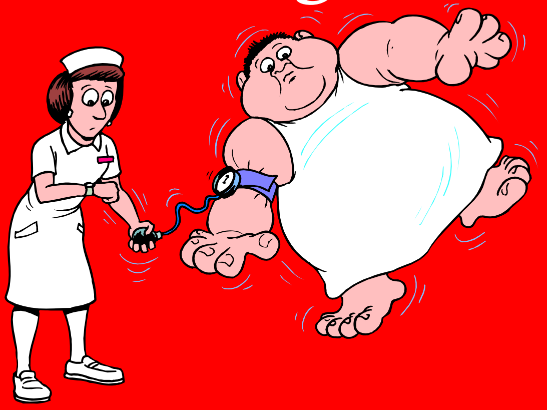
- Introduction to Advanced Trauma Life Support (ATLS) .
- Initial Assessment and Management.
- Airway and Ventilatory Management.
- Shock.
- Thoracic and Abdominal Trauma.
- Practical Skill Stations:
  - Cricothyrodectomy.
  - Venous Cutdown.
  - Peritoneal Lavage.
  - Tube Thoracostomy.
  - Pericardiocentesis.
  - Upper Airway Management.
  - IV/Shock Therapy.
  - PSAG Application/Removal.
  - Thoracic Lab.
- Head, Spine and Spinal Cord Trauma.

- Extremity Trauma.
- Practical Skill Stations:
- Head and Neck Trauma Assessment.
- Radiographic Identification of C-Spine.
- Spinal/ Extremity Immobilization.
- Initial Assessment Orientation.
- Injuries due to Burn or Cold.
- Pediatric Trauma.
- Trauma and Pregnancy.
- Stabilization and Transport.
- Practical Skill Stations:
- Written Test.
- Patient Moulage Scenario.

Training of Trainers :

The Office of U.S. Foreign Disaster Assistance of the U.S. Agency for International Development (OFDA/USAID) launched in May 1988 a training program in which three types of courses were developed using interactive training methodologies:

- **Course for Instructors.**
- **Disaster Management," and, more recently.**
- **Evaluation of Damages and Analysis of Needs.**



The Training of Voluntary Health Workers:

- Collaboration in first aid,
- Reception of cases at the health facility,
- Liaison with the family groupings,
- Operation of the health information
- Collaboration in carrying out programs of vaccinations, health education, environmental sanitation, nutrition, mental health.

Below are a few examples of the content of disaster-preparedness initiatives:

- Training in first aid
- How to lift and transport an injured person,
- How to clear the airways and carry out artificial respiration,
- How to stop a hemorrhage,
- What to do in the case of burns, drowning, electrocution, snakebite, poisoning, etc.
- Activities to ascertain health risks. The compilation of risk maps.
- Exercises in sanitation and hygiene.
- Utilization of safe water.

- Fly control.
- Vector control.
- Rodent control.
- The protection of foodstuffs.
- Use of latrines.
- Ensuring a clean environment, controlled refuse disposal.
- Measures against lice, scabies, parasites, etc.
- Activities concerned with the health education of groups at risk.
- Health activities as part of twinning arrangements.

DISASTERS AND DEVELOPMENT:

(Total Time: Minimum 3 hours)

SESSION #1: Introduction to Natural Disasters

- [1 hour and 45 minutes]

- Participants first take a short TRUE/FALSE quiz that addresses some of the key issues that are commonly subject to responses based on widely held misconceptions regarding disasters. The trainer then gives a lecturette covering a brief history of the natural disasters that have struck the host Country and the short- and long-term impacts of the most recent disasters.

- SESSION #2: The Role of Volunteers in Disaster Mitigation and Preparedness
  - [1 hour and 20 minutes]
- The final act of the disaster play, covering the mitigation and preparedness phases, is read. Key issues relating to these activities are then discussed.
- The class next divides into groups (by technical sector) to identify specific actions that they can take during their time in-country that relate to the different disaster phases discussed.
- The groups then come together again as a class to share and discuss their ideas.

- Act I of a case study/play, covering the pre-disaster, disaster event and immediate emergency relief phases, is read aloud, followed by a group discussion.
- Act II of the disaster play, covering the transitional recovery phase, is then also read aloud, followed by group discussion. In this session, the relationship between disasters, disaster relief and development is established, laying the foundation for the following session.

CENTERS OF APPLIED RESEARCH IN DISASTER MITIGATION :

- To study, develop, and apply technologies for disaster prevention and mitigation.
- To promote technical training.
- To disseminate information on preparedness and self-protection for the people.

CORE FOR EMERGENCY MEDICINE SETUP:

Medical Director: Physician Board Certified in Emergency Medicine.15 Years experience in U.K or U.S.

- Plans all Educational Activities.
- Recruitment of Faculty.
- Develops Policies.
- Develops Procedures.
- Quality Assurance.
- Defines Mission and Goals.

- Assistant Medical Director: Board Certified in Emergency Medicine **or** other Post Graduate Diploma in Emergency Medicine or Accident and Emergency (A&E) Diploma: 5 Years experience in a Trauma Center in U.K. **or** U.S.
  - Assists the Medical Director in Educational Program
  - Teaching : 60 %.
  - Administration : 40 %.

- Para Medic Instructor: Certification as Para Medic; 2 Years teaching and supervisory experience. Nursing Educator R.N. , BSN, CEN preferred.
  - Directs all Pre-Hospital Educational teaching Under the Supervision of the Medical Director
  - Flight Nurse Course.
  - Critical Care Nursing.
- Secretarial: 3 for Educational Program.
- Housekeeping: Security: Other: 6 full time.

- Public Relations Officer: Graduate 5 years P.R. experience.
    - Educates the Community; Health Care Policy Makers and the Media regarding Emergency Medicine/ Trauma and Critical Care Medicine.
- Administrative Assistant: Graduate 5 years experience in Management preferable in a teaching environment.
    - Maintains Schedules.
    - Supervises Support Staff.
    - Prepares Staff Budget and other Expenses such as Training Orientation, Medical Conferences etc.

- EQUIPMENT:
    - Audiovisual Apparatus:
    - Multi Media: 2.
    - Overhead Projectors: 2.
    - Slide Projectors: 2.
    - VCR/ TVs: 2.
    - Computer/ Printer/ Modem/ Scanner/ Digital camera: 2.
    - Software;
        - Financial
        - Data Base.
        - Word processing.
        - Graphics.

- Simulated Patient Education Materials:
  - Splints.
  - Knee/ Hip/ Air.
  - Backboards.
  - Cervical Collars.
  - Life Pack:
  - Video Tapes
  - Core Curriculum: 20.
  - Dummies 2.
  - ACLS Books 100.
  - ATLS Books 100.
  - Mega Code Simulator for : Arrhythmia, Resuscitation practice.
- Ambulance equipped with modern telecommunication and necessary instruments.

- BUILDING:
  - Office : 4.
  - Reception : 1.
  - Classrooms : 2.
  - Store : 1.
  - Garage : 1.
  - Utilities.

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PART IV

TARGET GROUPS:

Disaster-preparedness activities are included in programs focused on certain population groups:

- Schools, Occupational Training Centers,
- Workplaces,
- Neighborhood Groups,
- Community Based Organizations,
- Community Cluster Organizations,
- Associations, Groups of Volunteers, Citizens Community Boards.

The actors - Gathering and applying knowledge

The challenge is to apply the knowledge that has been accumulated and developed all over the World. The institutions of higher learning in the health sector should open their doors to initiatives from agencies like WHO to make emergencies and disasters an integral part of their curricula.

In disciplines such as engineering and the applied sciences, the study of natural disasters is approached from a rigorous analytical perspective, sometimes ignoring socioeconomic considerations. The contribution of this research to the improved knowledge of natural hazards has been important, but such studies now must be increasingly directed toward bringing benefits to communities.

Some institutions of higher learning are motivated by an ever-increasing awareness of their role in community health and safety. There are many examples, but mention should be made of the postgraduate-level curricula in the areas of structural and seismic engineering; applied studies and research; ongoing support for updating the Seismic Code; and applied studies. Mention must also be made of the interest in developing a postgraduate program in disaster prevention and management in Central America; the willingness to formally incorporate the study of disasters in their curricula.

The Decentralized Phase:
Preparedness of Public Sectors and the Community:

In addition to planning by relief agencies, disaster preparedness requires the organization and participation of a Country's institutions and the training of its human resources. Emergency preparedness must not be organized solely at the central level, but also with the participation of numerous other sectors: establishments such as schools, hospitals, blood banks, and airports also need plans The success of these efforts has varied from country to country depending, to a great extent, on the amount of authority the coordinating agency responsible for emergencies has, and the harmonious relationship between the Country's civilian and military sectors.

Exercises and activities to promote Community Preparedness

The community's emergency committee, in collaboration with the schools, local associations (such as the local branches of the Red Crescent) and community services. can organize simulation and other exercises and disaster-preparedness activities. This work should make allowance for the local culture and habits and if it is to be effective must not be of an artificial nature. Each potentially real situation must engender appropriate activities arising from discussion and the participation of the members of families from the community. Work on ascertaining risks and resources lends itself very well to creating a series of opportunities for carrying out activities that will be useful for community life and at the same time function as exercises in disaster preparedness.

Basic Education:

- **Experience shows that even in the absence of specific disaster-preparedness activities, the population and the staff of public services respond much better if the community develops activities and initiatives beforehand based on:**
- **Encounters, exchanges, the expression of needs, information and communication.**

- Community discussion and action to gain an understanding of the causes of disasters and associated problems, plan the most appropriate measures and put them jointly into effect.
- A feeling of belonging to the community by making proper use of local cultural values, forms of social life, resources and products.

- Combating the rejection or exclusion of the disabled, the mentally ill, the handicapped and other persons in difficulty.
- The development of assistance and mutual aid.

- Meetings with local authorities and collective discussions to resolve community problems.
- Training of health personnel and the public.

ADAPTING CURRICULA:

- It is common to observe a certain resistance in medical schools, nursing schools and the public health sector in general to including new subjects in the curriculum. To do so, the importance and relevance of the subject in professional practice must be demonstrated.
- There are still some obstacles due to lack of commitment on the part of educators and of the administration of academic centers, and also due to restrictions in the number of trained educators available and in support material on the subject. This situation requires maintaining and promoting an information network or the integration and utilization of already existing resources in order to rationalize the available capacity throughout the World.

The subject fails to receive the treatment it deserves because of time restrictions within curriculum plans, because it is not recognized as a subject for curricula, and for other reasons. A comprehensive strategy to ensure that this subject gets dealt with properly at the undergraduate and graduate level is the following:

- **Presentation of a well-structured proposal addressed to directors and teachers at academic centers on how to teach the subject, explaining both the importance of the subject and the proposed contents;**
- **Availability of up-to-date information concerning training policies related to this subject;**
- **Preparation of a cross-curricular project. All this should be accompanied by efforts to motivate students and to keep them up to date through training activities such as seminars, workshops, conferences and short courses.**

The Curriculum Could Take On Three Forms:

- A specific unit devoted to health administration in disasters distributed over different stages of a university (or equivalent) career;
- Incorporation and coherent assimilation of the material on disasters into traditional academic divisions (epidemiology, environmental sanitation, medical and surgical faculties, hospital administration, sociology, etc.);
- A combination of the two previous alternatives, which would guarantee more homogenous knowledge of the subject linked to the basic subjects studied, and a more comprehensive and multidisciplinary vision of the subject.

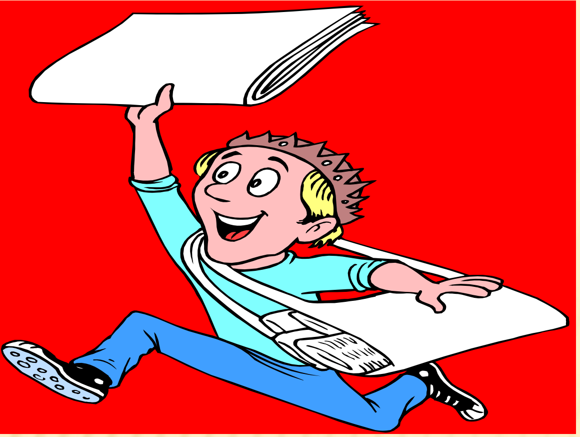
Formal education and the experience of the health administrator regarding disasters can be enriched by the individual contribution of professionals in the health sector, whose training has already included aspects related to disasters, as well as other matters related to specific disciplines that contribute to "safety in the exercise of the profession", and, taken together, contribute to disaster preparedness and the ability to mitigate the damage disasters cause. There is no doubt that once the subject is included within the academic curriculum of the health professions, it will take on a dynamic of its own. The losses caused by disasters will be less severe and capacity to supply health services following a disaster will match the demand and be based on criteria ensuring timeliness and efficiency.

CHILDREN

- Children are among the most vulnerable to disasters. For many years, governments, national institutions, and international organizations have recognized the advantages of teaching the school-age population disaster preparedness. While the principal aim of this training is to teach young people to keep themselves safe in case of disaster, children are also a valuable resource for expanding a disaster preparedness "culture". Although Latin American and Caribbean schools have not yet achieved Japan's level of preparedness, the school programs launched in the 1980s have had positive results in countries such as Chile, Colombia, Costa Rica, and Venezuela.

- School-based disaster training programs do not require large initial investments of time and money, since they are developed and integrated into the school curriculum.
- These countries have been able to implement their programs for several reasons. Their national institutions have demonstrated a political will to do so. Most importantly, they have succeeded because they have the support of educators in the country, the real decision-makers. One of the great advantages of school-based disaster training programs is that they do not require large initial investments of time and money, since they are developed and integrated into the school curriculum.

- UNESCO supports emergency evacuation and preparedness programs in several countries in collaboration with the Ministries of Education and emergency organizations. National NGOs (such as FUNDAPRIS in Venezuela) and international NGOs (such as Partners of the Americas in Ecuador and Central America) help the Ministries of Education develop disaster preparedness programs in many schools.
- Using school educational programs as instruments of change will reach a new generation sooner: the next generation of leaders, scientists, health workers and teachers will be better prepared to handle future disasters.



MASS MEDIA

To a great extent the mass media determine the way people react to disasters: the community depends on the media for the information they need to make decisions during disasters. Training campaigns for journalists on the importance of their role in preparing the community for disasters A more sustained, ambitious effort on the part of the entire Region, ideally supported by UN agencies, is needed to see that well-prepared information is distributed and used effectively by the media. This would also be an excellent theme for a future International Natural Disaster Reduction Day.

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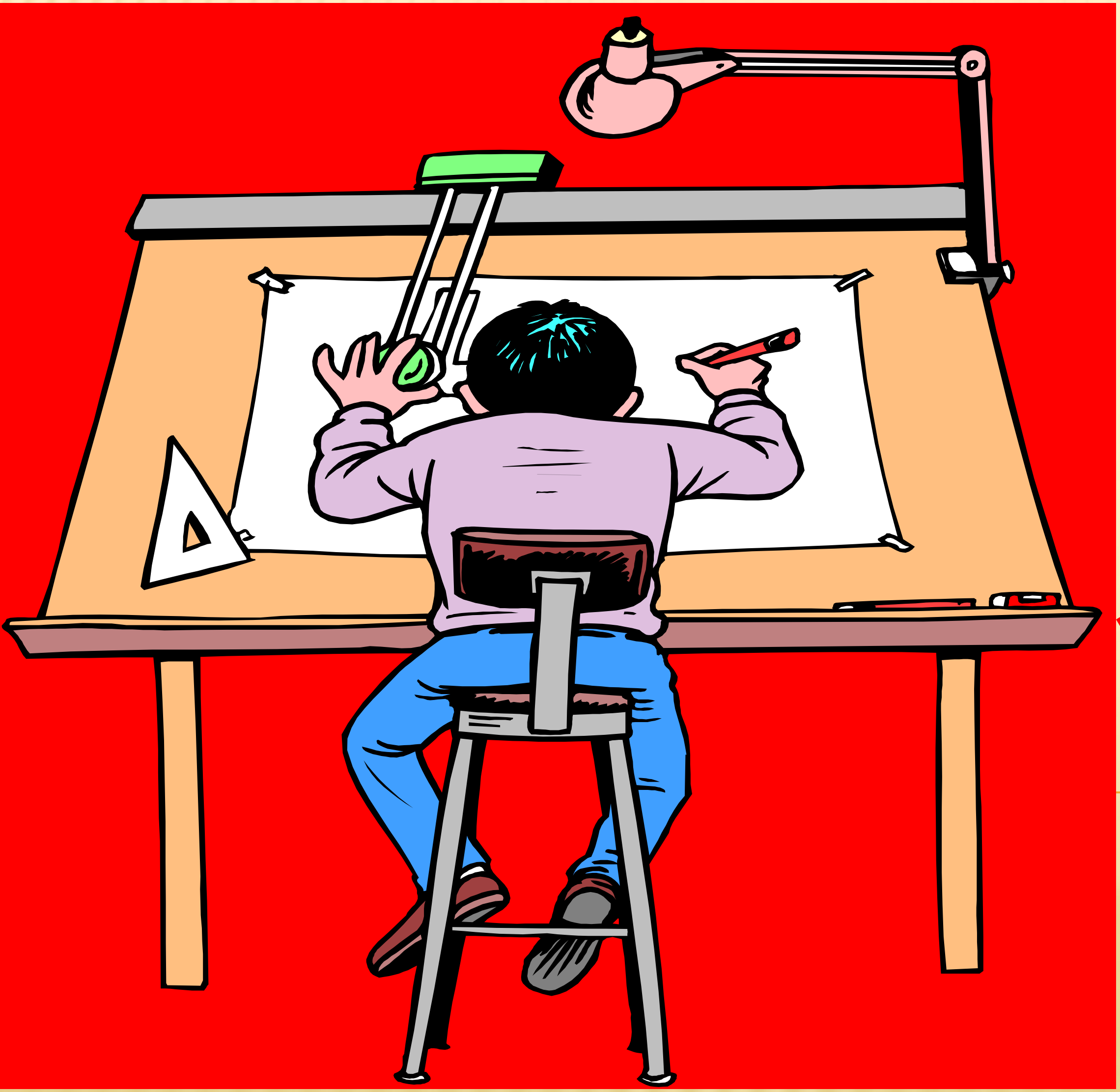
PART V



NUTS & BOLTS:

Evaluation of Pre-Disaster, Emergency, and Immediate Post-Emergency Measures

- What Preparation was made before the disaster?
- What was or was not done ? Why?
- What happened during the disaster?
- What did not happen? Why?
- Who was or was not there?
- What should be done to improve the entire EOA Plan?
- What laws or regulations need to be changed to improve the EOA Plan?
- What material should be stocked for emergency use in the future?

Disaster activities can be divided into three broad categories:

Pre-Disaster Activities: These activities are normally subdivided into disaster prevention, disaster mitigation and disaster preparedness. In general, disaster prevention is event-focused. In other words, the objective of prevention is to prevent the disaster from occurring at all. Disaster mitigation accepts the fact that some natural event may occur but tries to lessen the impact by improving the community's ability to absorb the impact with little damage or disruptive effects. Disaster preparedness assumes that the disaster will occur and focuses on structuring response and laying a framework for recovery.

Emergency Response Activities: Emergency response activities are those carried out during the actual emergency or immediately prior to it. This may involve evacuation of threatened communities, emergency assistance during the disaster, and actions taken in the immediate aftermath during the time when the community is rather disorganized and basic services and infrastructure are not fully functioning. Because the emergency period is both dramatic and traumatic, most attention by the press and international community is focused here. Yet in most disasters (with the exception of droughts and civil strife), the emergency passes rather quickly and, in reality, only accounts for a very small percentage of the total picture.

Post-Disaster Activities: Post-disaster recovery can be subdivided into two phases. The first begins at the end of the emergency phase and is a transitional phase (often called the rehabilitation phase) when people and community systems try to re-establish a semblance of normalcy. This period is usually characterized by such activities as businesses reopening in damaged structures, farmers returning to reclaim and clear their land, and resumption of basic infrastructure services such as water and sanitation systems in urban areas. The reconstruction phase is marked by large-scale efforts to replace damaged buildings, revitalize economies or restore agricultural systems to their full pre-disaster production capacity.

What a disaster preparedness plan contains:

- **A Disaster Preparedness Plan is no more than a set of instructions to tell people what to do upon the discovery of a disaster. It is drafted, discussed, coordinated, and finalized before and not during a disaster; it is kept up to date. It lists names and agencies to call in an emergency, action to take while awaiting help, appropriate methods for recovery of water-damaged materials, sources of supplies and materials, location of freezing and cold storage facilities (freeze stabilization could become the most important element in the plan), vacuum-drying and freeze-drying facilities, Names and where to contact conservators, chemists, electricians, plumbers, fumigators, etc. In short, all those whose help might be required.**

Preparedness activities for the population

In communities particularly exposed to the risk of disaster, local health personnel can include disaster-preparedness activities in the ordinary health programs. For example, ordinary hygiene programs can also deal with the problems of, and the way to behave in, the particular hygienic situation that arises as the result of an earthquake or a flood.

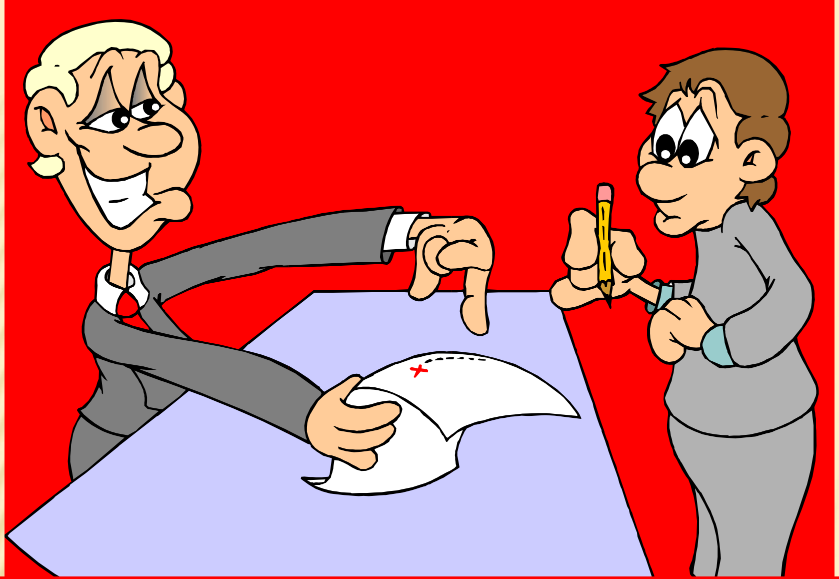
Disaster Mitigation: Maps and Scenarios for Planning

The information displayed on a map, with its striking colors and easy-to-interpret data, is a powerful tool for teaching about natural hazards. A map can summarize the findings of detailed scientific research and present it in a way that non-specialists can understand. For this reason, most disaster mitigation projects include an initial phase in which maps of different degrees of complexity are prepared to establish restrictions on land use or urge structural strengthening of buildings. A vulnerability analysis is performed during this first stage, and is complemented by information on population and infrastructure.

Geographical Information Systems (GIS) are a relatively new form of information technology. This system requires a large initial investment in computer hardware, software, and training for managers and users; however, it facilitates data management, allowing flexible updating of maps and the immediate incorporation of information from aerial photography and data obtained by satellites. Whereas with manual map making, correcting inaccuracies and updating used to take hours, the versatile GIS performs these operations in virtually no time.

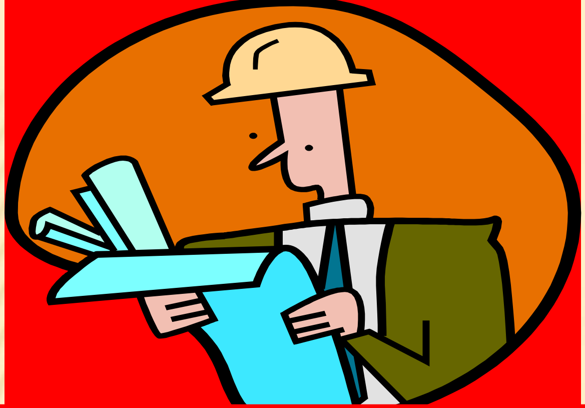
After Geographical Information is Collected:

GIS becomes a tool for forecasting trends in urban growth and locating areas and infrastructure at risk, thus producing useful visual aids for planning rational land use. However, the impressive technology and attractive maps should be considered only as powerful tools, not as ends in themselves. GIS has two drawbacks: first, the initial investment, operation, and maintenance of the equipment may outstrip the budgets of the institutions that use them. Second, mechanisms for updating information should be established from the start, but many institutions do not have the infrastructure to meet this demand.



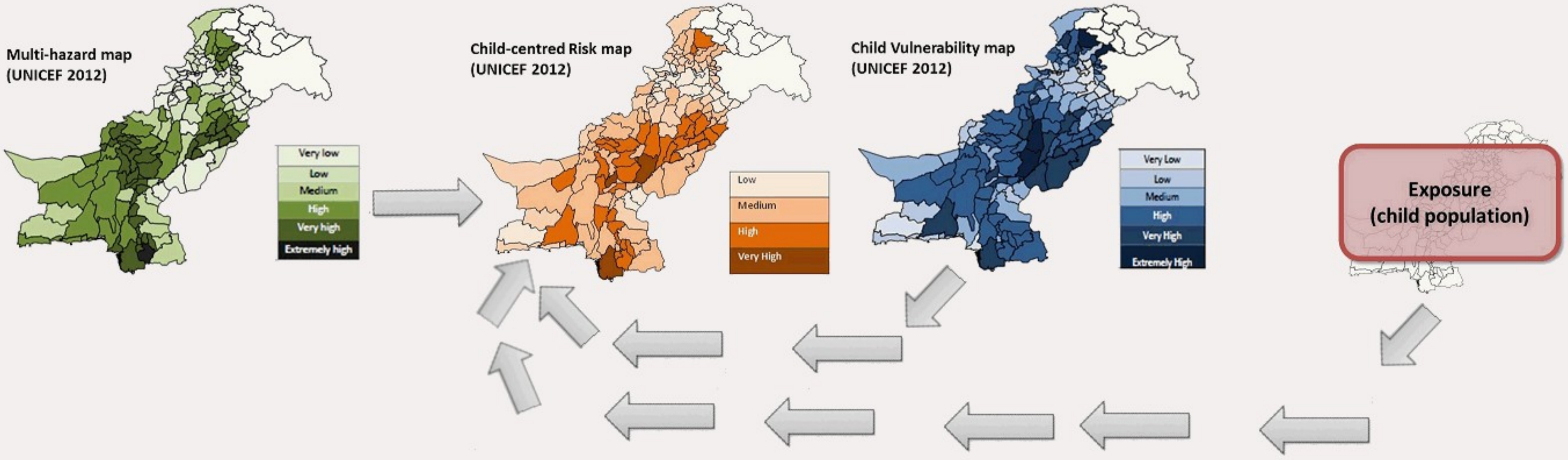
On the basis of these maps it has been possible to:

- Analyze potential socioeconomic impact;
- Estimate the vulnerability of threatened areas;
- Monitor the active Seismic Zones on a permanent basis;
- Improve Civil Defense response plans
- In summary, to mitigate the effects of natural disasters it is necessary, first, to be familiar with the hazard and, second, to locate it geographically in order to analyze the vulnerability and prepare risk maps.



On the basis of these maps:

- Legal measures can be taken for design and planned development of urban areas:
- New buildings can be designed taking into consideration identified risks:
- Existing buildings can be reinforced and upgraded;
- Civil engineering works can be constructed to limit the destructive effects of disasters:
- Decisions can be made (in extreme cases) to totally or partially relocate human settlements as a preventive measure:

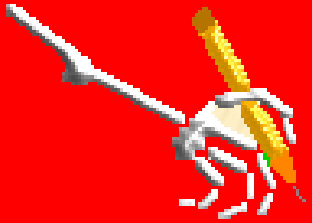


These examples of the use of risk maps show that maps should not be ends in themselves but tools for planning the orderly growth of cities and for developing institutional and community preparedness activities. In addition, although the technical and financial cooperation of donor institutions and countries is necessary to promote mitigation programs in their initial phases, to continue and attain objectives requires maturity and commitment on the part of those receiving this support.

Examples of Preparedness Activities

- **Exercises in first aid: how to extricate. give first aid to, and transport injured persons. etc..**
- **Exercises in providing temporary shelter: organization of camps for temporary shelter in event of a disaster,**
- **Sanitation exercises: installation and management of water-supply points and latrines, controlled refuse disposal, etc.,**
- **Guided visits to volcanoes, seismological observatories, dykes, civil protection centers (fire stations, forest warden posts.etc.), factories. stores of dangerous materials, sites exposed to risk.**

- Dummy runs and practice alerts organized by the local authority,
- Strengthening of flimsy structures in accordance with the programmes of the local administration: groups of dwellings can be strengthened with the help of voluntary workers, schoolchildren, etc.,
- Flood protection (various means of ensuring that a watercourse does not overflow its banks);
- Information (exhibitions of drawings. lectures, photographs. films on disaster preparedness);
- Training of groups of volunteers available to help the community emergency committee in activities when a disaster strikes and afterwards.



CHECKLIST

- What is the geographical area affected?
- What are the characteristics of the population affected?
- What was the effect on communications and transport?
- What was the effect on housing?
- What was the effect on agriculture and livestock?
- What is the situation regarding relief supplies and requests?
- What was the impact on the health sector?

Environmental Sanitation

Major disasters often damage basic sanitation services, including the provision of potable water and the disposal of excrete and solid wastes. This may cause an increase in waterborne diseases as well as a proliferation of flies, mosquitoes, and rats. Problems may also arise from overcrowding in evacuation settlements, poor food hygiene, and human and animal corpses.

- WATER SUPPLY
- SEWAGE DISPOSAL
- SOLID WASTE DISPOSAL
- HUMAN SETTLEMENTS
- FOOD HYGIENE
- CORPSES
- VECTORS
- RODENTS, DOGS, AND SNAKES

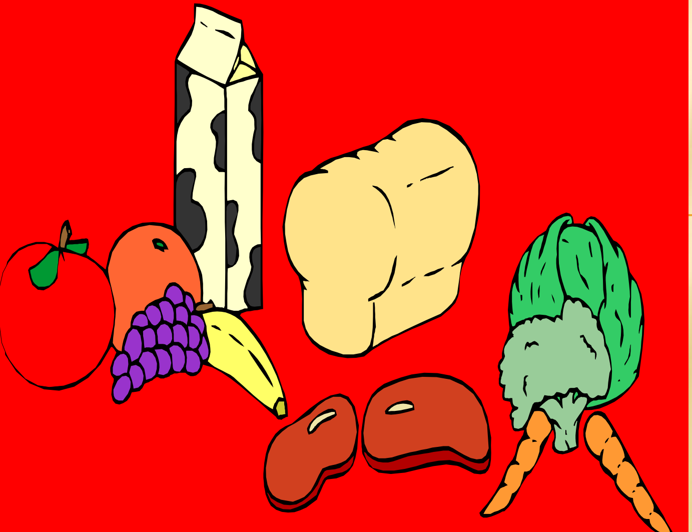
Sardar Taimur Hyat-Khan

Pak Prosperity:

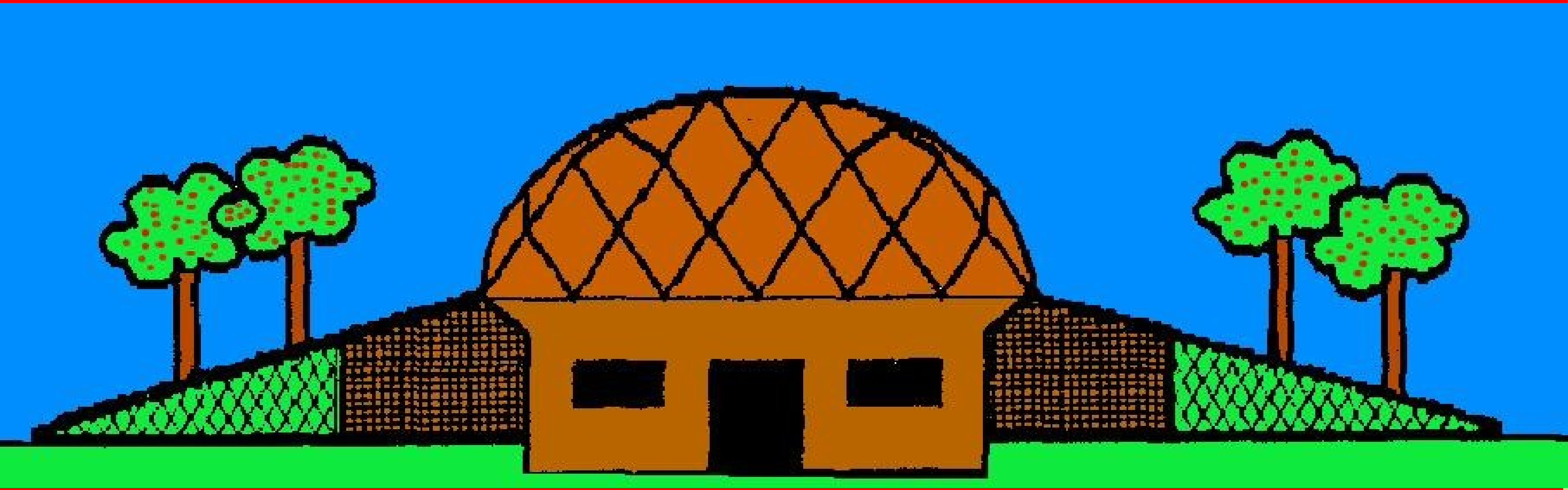
Emergency Medicine Training; Emergency Preparedness & Humanitarian Assistance Training:

PART VI

HUMANATARIAN ASSISTANCE:

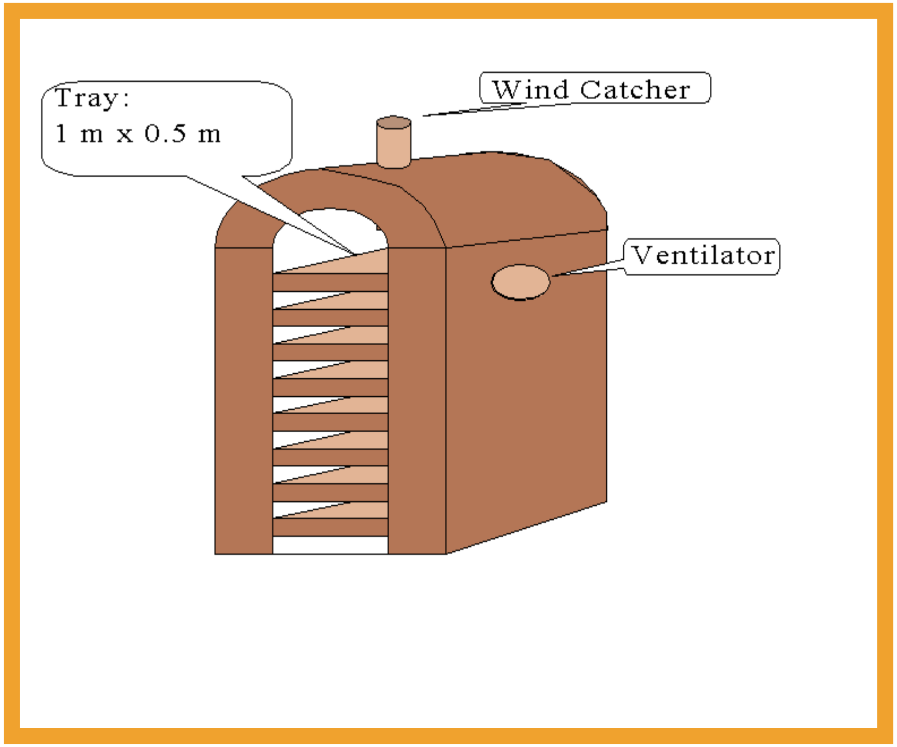


Low-Cost, Disaster-Proof, Super-Insulated (LCDPSI)



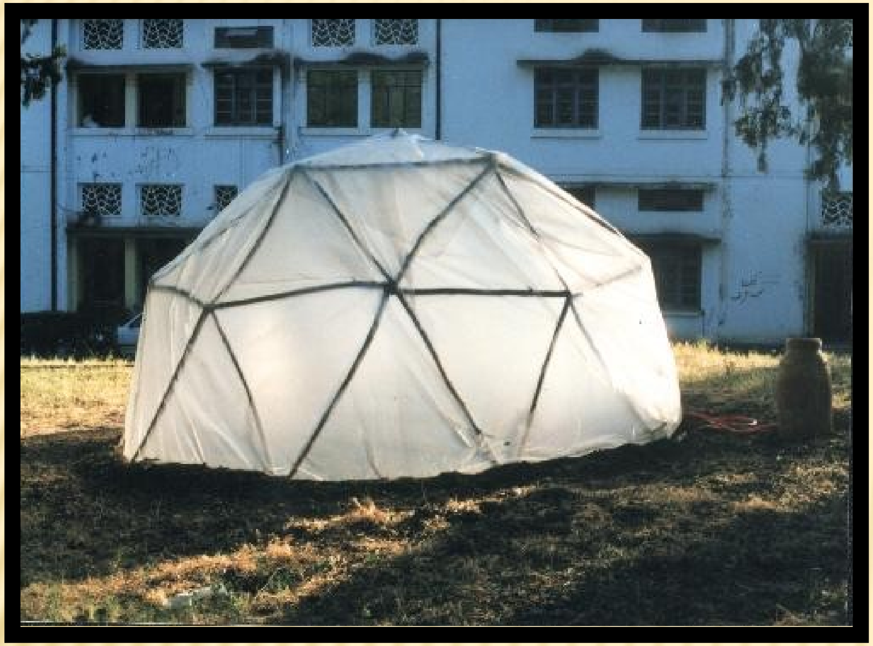
Low-Cost, Disaster-Proof, Super-Insulated (LCDPSI) Construction is a unique Low-Cost Technology for Housing and Storage Construction. The Raw materials used are Thin RCC Shell; Basalt Rebar and varieties of Clay. Among other advantages it is Disaster-proof and could result, if widely adopted, in saving numerous lives. The high degree of insulation provides relief from extremes of temperature in the light of Global Climate Change. It is quick and easy to build as it requires a small group of semi-skilled workers making use of a Kit that provides the technical excellence needed for any type of construction.

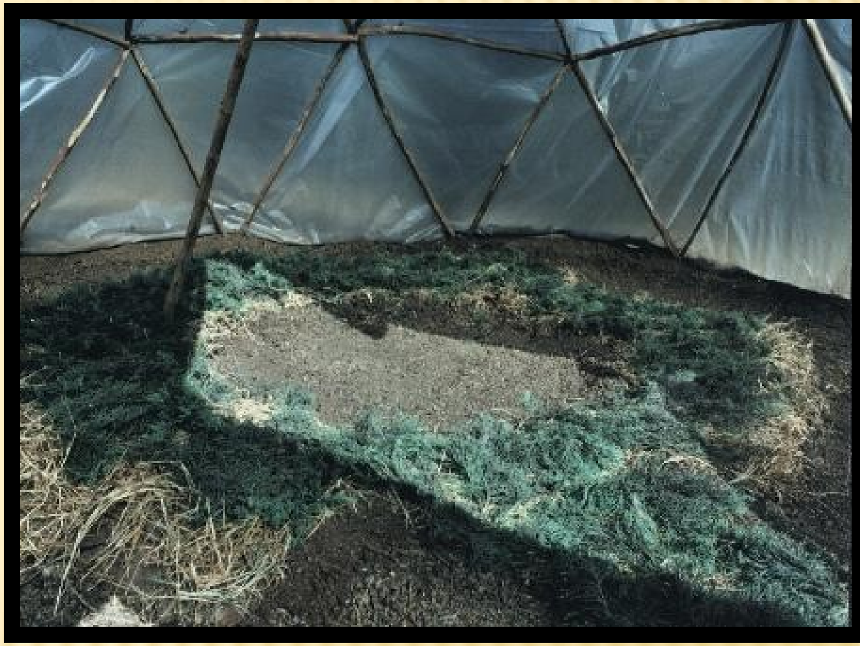
Nutrition Supplement / Nuclear Winter:



The "Khumbi Kulla" or low-cost mushroom structure is perhaps the only source of nutrition in case of nuclear winter. THIS 5' X 5' X 7' STRUCTURE CONTAINS 8 x 1 meter square TRAYS FOR MUSHROOMS. These trays can be alternated with fresh manure trays to provide natural heating, through decomposition, in winters. The structure uses LCDPSI construction technology making it low-cost and quickly erected.

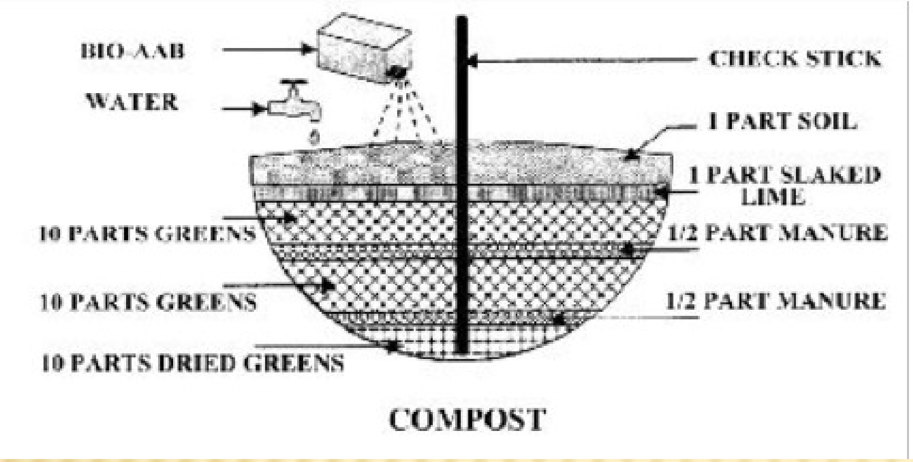
THE “WAH GARDEN”





THE “WAH GARDEN”, LIKE OTHER INTERVENTIONS SPONSORED BY THE AUTHOR, IS A THOROUGHLY RESEARCHED, LOW-COST, APPROPRIATE TECHNOLOGY INTERVENTION. IT IS BASED UPON THE AUSTRALLIAN CONCEPT OF PERMACULTURE, THE STRUCTURE PROVIDES AN ENVIRONMENTALLY PROTECTED, COMPOST BED, SUB-SOIL IRRIGATED KITCHEN GARDEN FOR NUTRITION ENHANCEMENT. IT IS ADMIRABLY SUITED TO LONG TERM, REFUGEE/ DISASTER REHABILITATION CAMPS. EASY TO FOLLOW, STEP BY STEP GUIDES IN URDU ARE AVAILABLE.

Bioaugmentation for Rapid Composting, Subsoil Irrigation (Reticulation) With Environmentally Safe, Foliar Applications of Complete Plant Nutrition



Dew Catchers & Environment Protected Structures for Summer & Winter to Aid in Productivity:

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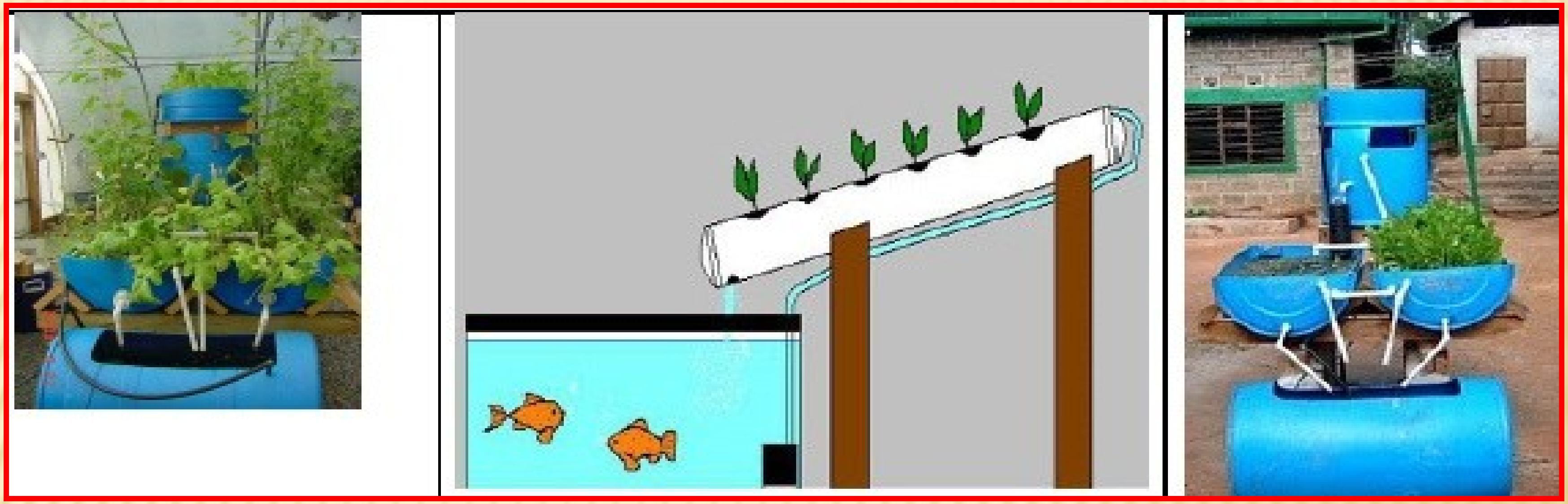
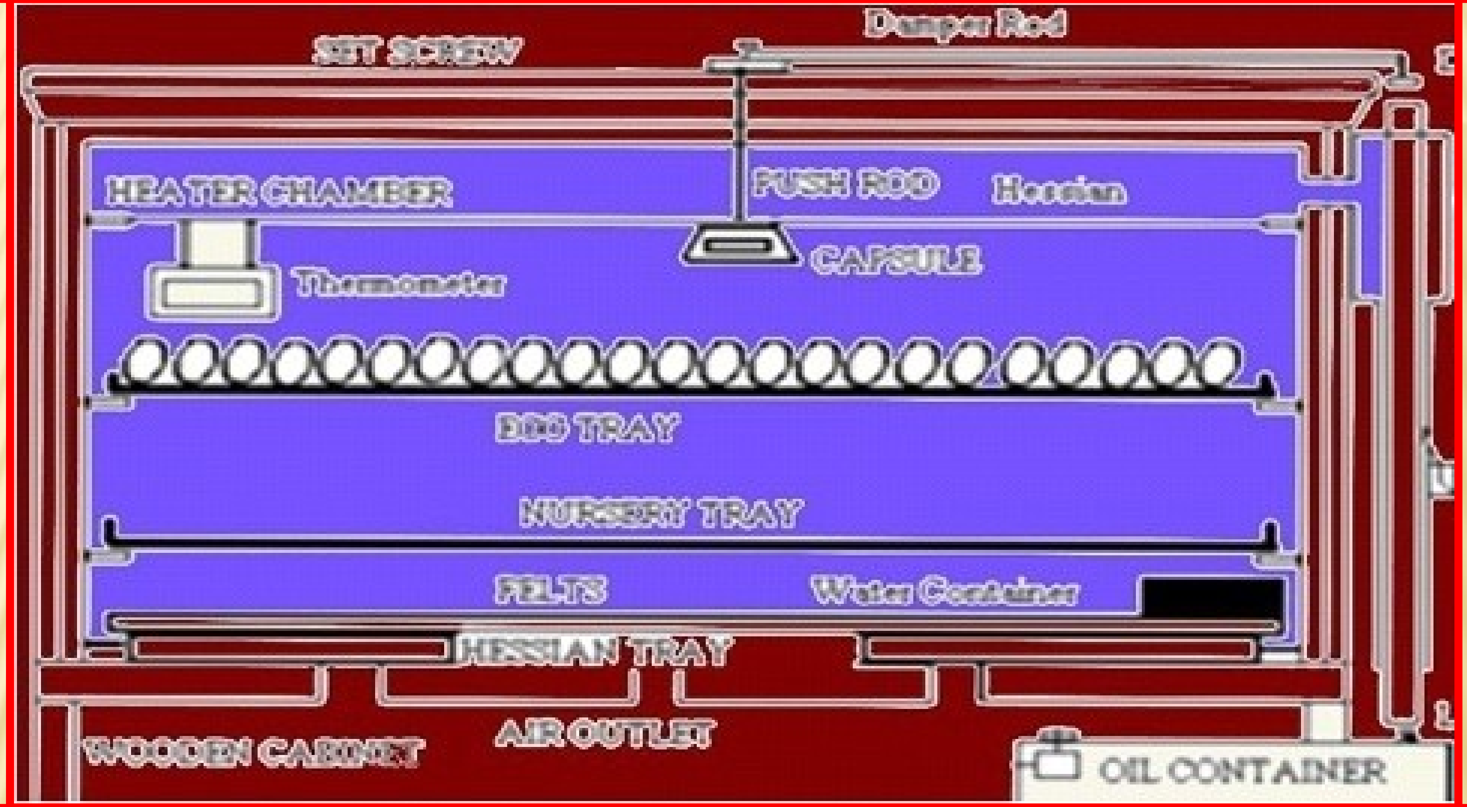
AQUAPONICS/ BARRELPONICS:



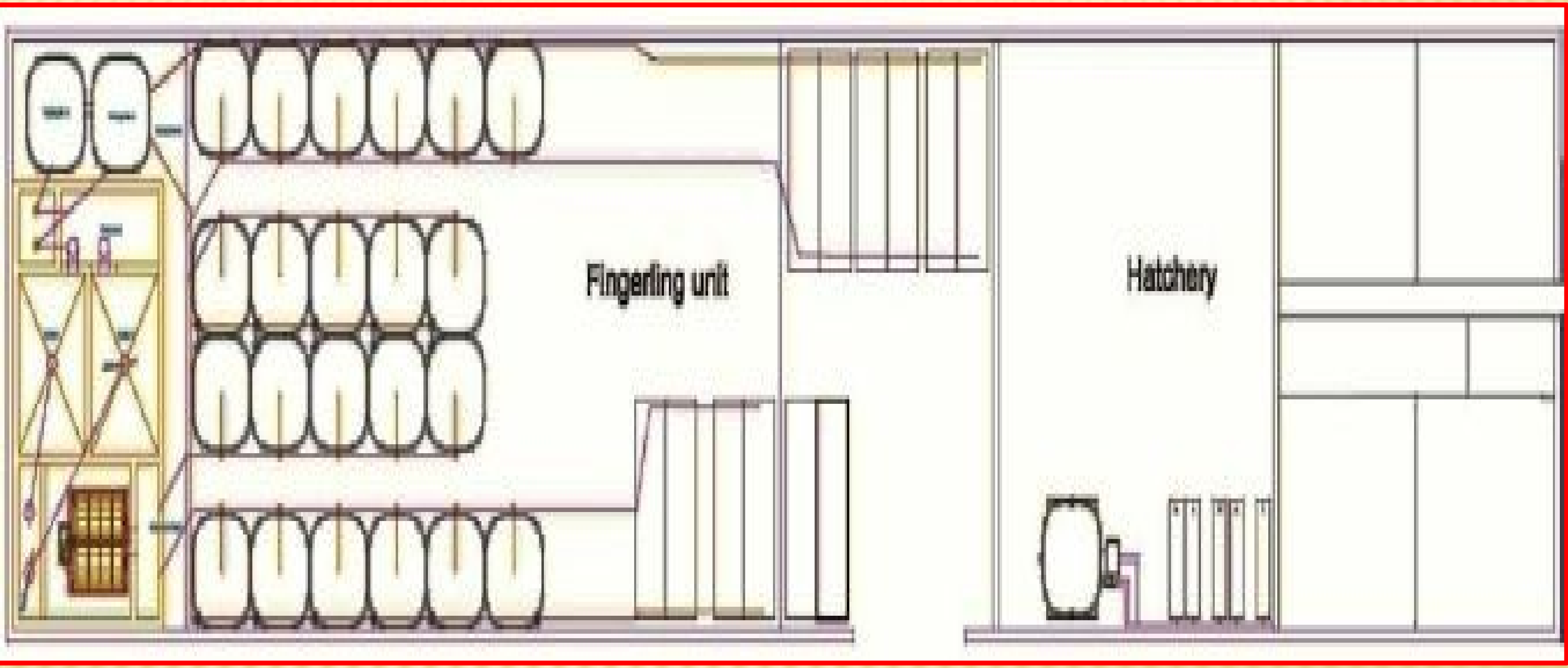
Designed as an introduction to aquaponics and to make one familiar with the principals involved with minimal expense. Very adaptable to situations where conventional electric pumps may not be practical. Not intended to be a commercial unit in itself although the principles can be enlarged to do so. A Godsend to areas of the world where there is no soil or it is very poor. Many cultures in the world suffer from malnutrition and aquaponics may be one of the solutions to the problem. Fish need clean oxygen rich water and reliable feed to thrive. The bacteria and plants in the system keep the water crystal clear and the water has the sweet smell of healthy creek water. Plants need nutrients in the proper amounts, oxygen, CO_2, water and light. Barrel-ponics Travis W. Hughey.

SMALL ALTERNATE ENERGY INCUBATORS:



10 to 200 Eggs Incubator that works on Alternate Energy and ensures a constant supply of chicks for Nutrition Enhancement.

Small Fish Hatchery.



Community or Refugee Level Intervention for further Large Scale Fisheries Development.

STOP